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ELECTRICAL WORLD

News Issue

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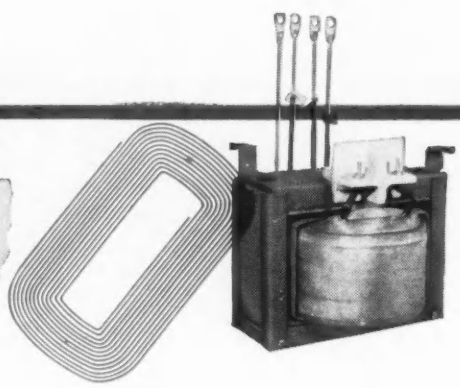
WE LINED UP THE FLUX PATH

TO CUT DOWN SIZE!



Ten years ago, General Electric introduced the Spirákore transformer. It was revolutionary! It was the first distribution transformer in which the flux through the core followed grain direction of the steel. Literally, the crystals of cold-rolled steel were lined up to provide the best possible flux path and then, by spirally winding the core, we lined up the steel so the flux would follow this path. Magnetic properties of the steel were so improved that we were able to build a much smaller, lighter transformer—that sold at a much lower price.

Now many *small* distribution transformers are built along these lines. But General Electric has not stopped here. By adapting this same principle to larger cores, we have brought weight savings to the entire line of single-phase, outdoor distribution transformers—up through 500 kva. Nor did we stop with the core. We improved the impulse strength of the coils—improved the clamping construction for greater mechanical strength. We sealed the tanks to prolong oil life—and even developed a new, better synthetic resin paint that is baked on, and which reduces maintenance costs.

Today—as ten years ago when lighter, smaller Spirakore transformers made history—Spirakore still leads the field—the finest distribution transformer we have ever made, the finest you can buy. Ask for bulletins GEA-4885 and GEA-4521. ***Apparatus Dept., General Electric Company, Schenectady 5, N. Y.***

Spirakore Transformers

GENERAL ELECTRIC

402-86

NEWS OF THE ELECTRICAL WORLD

The Electrical Week

Short-wave radio has proved so valuable to electric utilities that they are in there fighting for their share of frequencies which FCC plans to allot. How the utilities will fare has not been indicated . . . EEI has made its semi-annual survey of the capacity situation and has found that despite all the kw's added in 1948, reserve in December will be less than a year ago . . . At Raleigh, N. C., AEIC and EEI meter committees learned among other things that meter production is higher than ever but demand is not slackening . . . AIEE held a district meeting at Washington, but power was given a minor place. Important, however, was a report that REA plans to increase its distribution voltage.

Electric Bond & Share stockholders have been told that of the 16,750,000 kw of new generating capacity being installed by the public utility industry, over 3,000,000 kw, or about 19%, is being done by the Ebasco organization.

The independent status which the Taft-Hartley Act requires of plant protection employees has brought new unions knocking on management's door. Among them are the United Plant Guard Workers of America, which recently precipitated the Briggs shutdown in Detroit; the United Protective Workers; and the Plant Protection Association. The AFL has some federal locals of guards, but they must cut any ties with the national organization to have any standing before NLRB.

Is the IBEW becoming music conscious? The Atlantic City convention stepped up organization in radio and television and adopted a theme song for all IBEW "gatherings, outings, and clambakes."

AEC has asserted what seems to be a new concept of the status of union officials whose salaries come from the union rather than from an employer. In a letter to President Albert J. Fitzgerald of the United Electrical Workers, CIO, discussing its order that General Electric not recognize UE as bargaining agent for its atomic workers, AEC said in part: "The Commission believes that those union officers exercising administrative, negotiating, and disciplinary authority over workers employed on atomic energy projects are themselves participants in the atomic energy program and should be subject to a comparable scrutiny from the security standpoint."

Maine utilities are happy. Rains have averaged an inch a week for the past three weeks. Any continuation of the pattern will assure sufficient hydro power for the coming winter.

California can look forward to a happy future as far as its water supplies are concerned. Dr. Gerald Wendt, of McGraw-Hill's *Science Illustrated*, declared recently that when atomic energy is fully harnessed, perhaps within 10 years, Californians can take all the water they want from the Pacific and purify it economically.

Robert M. Hutchins, chancellor of the University of Chicago, has some advice for large industrial concerns—if you hope to be in business 25 years from now, you should know about atomic energy.

Equipment delivery times in a nutshell from a talk by G. S. Price, Westinghouse Electric Corp president: Large turbo-generators, 3 years; switchgear, 1 year; transformers, favorable.

One manufacturer of hydro turbines has well over 100 wheels on order, finds increasing inquiry about them from eastern power companies as a result of the recent boosts in coal prices.

Notes From The News

Niagara Falls business men have protested the shut-down of the Falls illumination, saying it won't save any power . . . H. W. Reed told the American Gas Association that the country needs a long-range fuel policy administered federally. He says FPC can't regulate natural gas satisfactorily without one . . . The Chinese have executed a former employee of Shanghai Power for "Communist-inspired" sabotage—putting steel filings in a generator . . . The Northwest Utilities Conference may ask a return of Daylight Saving to help meet the capacity shortage

. . . Wisconsin, still suffering from a drought which began last fall, faces curtailment unless heavy rains come soon . . . Turbine parts were shipped from Sweden to Bangkok in two days by air freight, recently. They weighed two tons.

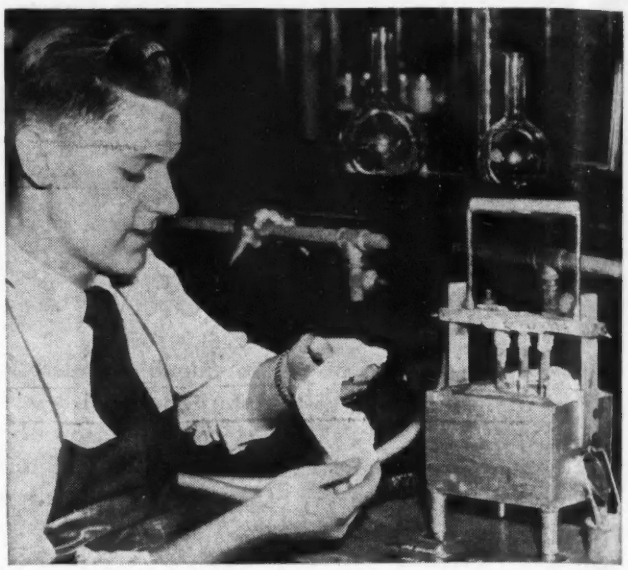
ALCOA has boosted the price of pig and aluminum ingot one cent a pound each . . . Illinois' Commerce Commission and the Federal Power Commission are contesting jurisdiction to order gas cut-offs. Four Illinois power companies stand in the middle . . . Georgia Power's "Champion Home Town Contest" has four prominent Georgians and an editor of "Reader's Digest" as judges . . . The gas shortage can be solved by rate increases, Consultant Edward Falck told the AGA . . . And Japanese Communists are using their control of the electrical union to retard industrial production by power stoppages.

FINANCIAL:

Otis & Co objections to a negotiated deal for 400,000 shares of Oklahoma Gas & Electric common, to be sold by Standard Gas & Electric, soured the sale after exemption from competitive bidding had been obtained. The result, a competitive sale of 250,000 shares . . . Pacific Gas & Electric sold its second $75,000,000 bond issue in one year. This time its net interest cost was 3.12. Last time, it was 2.90 . . . FPC has OK'd a Northwestern Public Service Co issue of $1,300,000 in 10-year, 4.5% sinking fund debentures . . . Common stockholders of Virginia Electric & Power will be offered a new issue on a one-for-four basis, to record of Nov 12. VEPCO hopes to raise $11,000,000 from the issue, for construction.

Four power companies have asked SEC to authorize changes in their stock structure which, they contend, will permit the filing of consolidated income tax returns and make possible substantial tax savings . . . Part of the $213,750,000 counterpart funds which have been released to France by ECA will go into power plant construction. The latest program includes 60 hydro plants and 11 thermal generating stations . . . Individual liquid savings during the second quarter this year were $900,000,000. They were half those of the comparable quarter last year, but total individual savings were at about the same level each year, SEC reports.

Central New York Power Corp has asked the New York Commission to authorize $5,000,000 of new borrowings to finance construction, chiefly generating plants . . . At a hearing asking permission to borrow $5,000,000 for construction, Buffalo-Niagara declared that it plans to spend $59,440,000 for capital improvements, almost half of it for a steam plant at Dunkirk . . . Boston Edison has asked the Massachusetts Commission to OK $25,000,000 of unsecured notes for its expansion program.



PURE ALUMINUM can be made in this model of Martin Hall's original reduction cell. Builder-owner is Stanley Sitta, Cicero, Ill., high school student, who won top prize in State Science Exhibit

CONSTRUCTION:

Idaho Power put its new Hagerman Valley plant into operation Oct 4 . . . Nantahala Power & Light has received state commission approval for a $6,652,000 construction program, which includes three new hydro plants with a total capacity of 35,000 hp plus improvements to its Bryson City plant . . . Excavation has begun for the Consumers Power generating station on Lake Erie near Monroe, Mich. Two 85,000-kw units will be in operation by 1952 . . . British Columbia Power Commission will lay a submarine cable across Lake Okanagan to connect the Peachland-Westbank area with the Commission's new hydro project at Whatshan Lake . . . Portland General Electric has started work on an $800,000 transmission tie to the Bonneville system at Troutdale. Two 57,000-v circuits will provide capacity for an additional 180,000 kw.

Consumers Public Power District is nearing completion of a 115-kv line between Norfolk and O'Neill, Neb. The line will carry power to the Fort Randall Dam construction site and move Fort Randall power into the system when generation begins at the big Missouri River plant.

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Location of NCUR Systems and Transmitters

Region	Systems		Total Transmitters			1951 Transmitters per 100 Sq Mi
	Present	By 1951	Present	By 1951	Increase	
Middle Atlantic	32	52	1663	2818	1155	3.2
Great Lakes	124	187	3101	8248	5147	2.4
New England	29	64	611	1320	709	2.0
Texas-Louisiana	48	76	1247	2850	1603	0.9
Southeast	78	148	1542	3305	1763	0.9
Mid-Central	65	133	1285	2732	1447	0.7
Southwest	18	33	748	1868	1120	0.4
Minn-Dakotas	24	66	226	842	616	0.4
Northwest	29	55	733	1376	643	0.4
Rocky Mountain	20	36	176	510	334	0.2
U. S. A.	467	850	11,332	25,869	14,537	0.9

Growth of Utility Radio Service

	1944 Actual	1948 Actual	1951 Est	Increase
1-5 mc				
Systems	21	27	25	−2
Base Stations	57	49	35	−14
Total Transmitters	149	200	150	−50
25-50 mc				
Systems	43	312	550	238
Base Stations	99	830	2,000	1,170
Total Transmitters	698	14,241	25,000	10,759
72-76 mc				
Systems	0	16	15*	−1
Base Stations	0	50	35*	−15
Total Transmitters	0	812	450*	−362
152-162 mc				
Systems	4	47	335	288
Base Stations	10	85	765	680
Total Transmitters	10	1,274	8,550	7,276
Total				
Systems	78	402	925	523
Base Stations	166	1,014	2,835	1,821
Total Transmitters	857	16,527	34,150	17,623
Licensees (no duplications)	56	365	850	485

* Exclusive of Fixed Service Installations

PATTERN OF UTILITY radio systems today and in 1951 is shown in the table above. Growth of utility radio is shown in the table at right. These exhibits showed FCC why

Utilities Vie for Radio Channels

How VITAL is the maintenance of electric, gas, and water utility service during local or national emergencies? Are police, fire fighting, or other public safety operations effective, or even possible, when these services are disrupted?

These questions, together with the obvious answers, were presented to the Federal Communications Commission this week (Oct 11) by utility spokesmen. At stake were the prized—and comparatively scarce—short-wave radio frequencies to be parceled out by FCC among numerous contenders for mobile radio service licenses.

Last week, the Commission began hearing oral arguments on a series of proposed rules designed to replace its general mobile radio service. Under the latter, FCC licensed, on an experimental basis, practically all comers seeking radio frequencies for business purposes.

Three Types of Service

FCC's new rules, proposed June 11, contemplate establishment of three new types of mobile service, with qualified applicants in each classification receiving permanent licenses. Intercity bus and truck services, urban transit systems, taxicabs, and railroads would be lumped in a land transportation group. Telephone companies and other communications common carriers would supply radiotelephone service to the public with another set of frequencies. Public utilities, which rely on radio for maintenance operations, would vie with practically every other industry for the channels available to industrial radio services.

Public safety services, including police, fire department, and other state, county, and municipal functions, would be expanded and would retain a large number of frequencies. Just as important, from the utilities' viewpoint, is the prospect that public safety organizations probably would get more frequencies and priority status in the event of war or similar emergency.

Under FCC's present proposals, electric power, gas, water, and steam utilities will compete with other business for the 200-odd frequencies tentatively assigned for the new industrial radio services. Some of these assigned frequencies have been allocated for exclusive use of the utilities. But petroleum, logging, mining, and farm interests will share the others. The FCC rules apparently make these frequencies available to any enterprise showing a need for radio in its operations.

Nineteen representatives of privately owned, public, and cooperative utilities pleaded with FCC for "adequate frequencies" to carry out speedy maintenance of their facilities. Their appearance was in cooperation with the National Committee for Utilities Radio. The committee is the successor to the Utilities Section of the old Radio Technical Planning Board, whose 13 panels previously helped FCC police the mobile radio field.

Vast Growth Indicated

NCUR presented a voluminous study to FCC as a basis for its claims to frequency channels. The report showed that the number of utility licenses and transmitters will more than double within the next three years; that the greatest growth in transmitters will be in the Great Lakes, Southeast, and Texas-Louisiana regions; and that the greatest density of transmitters by 1951 will be in the Northeastern states.

Principles on which the NCUR study was based include the assignment to utilities of channels neither occupied nor subject to interference from other local users and exclusive channels where repeated use of them must be made.

The entire membership of the Commission heard the utilities' arguments. Chairman Coy assured the group that FCC would endeavor to allow their industries sufficient frequencies to carry on operations with radio aid. He pointed out, however, that FCC had many more demands for frequencies than it had channels available. If the Commission was impressed by the plea of public safety status for the utility service, it gave no indication thereof during the hearings.

Dondanville Heads Group

The utility group was headed by R. V. Dondanville, Commonwealth Edison Co, chairman of the National Committee for Utilities Radio. L. I. Bateman, Los Angeles Department of Water and Electricity, represented his city, the American Water Works Association, and the American Public Power Association. REA Administrator Claude Wickard and Clyde T. Ellis, National Rural Electric Cooperative Association, asked that frequencies be made available to power co-ops and other rural electric systems.

Other industry spokesmen included G. H. Underhill, E. D. Glatzel, Detroit Edison Co; E. M. Borger, Peoples Natural Gas Co; C. F. Demey, Columbia Engineering Co; H. Turner, Ohio Power Co; R. H. Fite, Florida Power & Light Co; J. F. Davenport, Southern California Edison Co; M. G. Gill, Kansas Gas & Electric Co; J. L. Bates, Central Power & Light Co; C. A. Leland, Iowa Power & Light Co; E. S. Bundy, Buffalo Niagara Electric Corp; J. T. Ward, Boston Edison Co; and C. E. Oakes, Pennsylvania Power & Light Co, and a former president of Edison Electric Institute.

Changes in Capacity Reported to Federal Power Commission

PLANT ADDITIONS DURING AUGUST

Utility	Plant	Fuel	Capacity (Kw)
Pennsylvania Electric Co.	Warren	S	30,000
Hart Municipal Hydro Electric Dept.	Hart, Mich.	IC	980
Dahlberg Light & Power Co.	Gordon, Wis.	IC	136
Pella Municipal Power & Light Dept.	Pella, Iowa	S	1,500
Marceline Water & Electric Dept.	Marceline, Mo.	IC	556
Otter Tail Power Co.	Lisbon, N. D.	IC	400
Central Electric & Gas Co.	Philip, S. D.	IC	625
Western Light & Telephone Co	Medicine Lodge, Kan.	IC	1,000
Consolidated Gas, Electric Light & Power Co. of Baltimore	Riverside	S	60,000
Culpeper Light & Power Dept.	Culpeper, Va.	IC	855
Farmville Water & Light Dept.	Farmville, N. C.	IC	1,130
Florida Power Corp.	Apalachicola	IC	1,000
Homer Light & Water Dept.	Homer, La.	IC	560

PLANT RETIREMENTS DURING AUGUST

Kingman Electric Co.	Danforth, Me.	H	100
Kingman Electric Co.	Danforth, Me.	IC	150
Fairfax Municipal Light	Fairfax, Minn.	IC	90
Iowa Public Service Co.	Cherokee	IC	160
Iowa Public Service Co.	Cherokee	IC	168
Otter Tail Power Co.	Jamestown, N. D.	IC	400
Consumers Public Power Dist.	Ravenna, Neb.	S	150
Consumers Public Power Dist.	Neligh, Neb., No. 1	IC	80
Western Light & Telephone Co.	Concordia, Kan.	S	600
Homer Light & Water Dept.	Homer, La.	IC	140

H—Hydro, IC—Internal Combustion, S—Steam.
United States Capacity as of Sept 1—Steam, 37,478,854 kw; Hydro, 15,434,199 kw; Internal Combustion, 1,506,701 kw; Total, 54,419,754 kw.

EEI Survey Shows More Capacity but Less Reserve Next December

EEI's LATEST loads and capacity survey tightened this country's power supply belt another notch this week (Oct 13). It showed:

1. National reserve capacity this December will be 4%.

2. Capacity installations this year will total 4,750,000 kw.

This estimate of reserve capacity this December is down from last May's estimate of 6% reserve for the 1948 peak load. But the estimate of capacity to be installed this year was up 150,000 kw over that forecast last May.

EEI President Ernest R. Acker announced the results of a fourth survey by EEI's load and capacity committee experts, representing power systems all over the United States. The survey noted a continuation of the high rate of growth in electric power demand.

The survey noted also that generating equipment is now being delivered somewhat ahead of schedule. But difficulty continues in getting construction steel, piping, and other items required for operation of the new equipment.

Equipment manufacturers continue to work at full capacity and their output to surpass all previous records, the survey found.

This winter's peak will find capacity reserves somewhat less than those of last winter in a few areas, Acker said, and somewhat greater in a few others. The national reserve last December was 5%. In December, 1949, the reserve capacity margin will climb to 8%. In 1951, Acker added, it will be 14%, "which is regarded as a normal reserve." Acker noted that the validity of these estimates will depend, as this year's did, on the influence of world conditions on U. S. industrial activity.

Overall figures on the growth of generating capacity through 1951 also showed an increase in this week's statement over those cited last May. The latest survey showed that additions already made or scheduled for the five-year period of 1947-1951, inclusive, total 25,300,000 kw. Last May, the survey spoke of 23,000,000 kw installed between V-J Day and the end of 1951, of which 18,500,000 were to have been installed by privately-owned utilities. The latest survey shows that privately owned utilities will add 20,900,000 kw of the 25,300,000. Steam plants will account for 83% of the five-year program.

Prospects of curtailments at the peak load season were recognized but minimized in Acker's statement on the survey. He declared that a combination of bad weather, equipment outage, and peak loads may force the shifting of industrial load to off-peak hours, "some appeals to commercial and residential customers for conservation of electricity, and even some curtailment during the period of such emergencies. The shortage of water for hydroelectric generation, because of the severe drought, is an adverse factor at present in the north central and northeastern part of the United States."

Spurring the vast increase in electric power demand are the 6,000,000 customers added since V-J Day, Acker declared. He added, however, that the backlog of customers awaiting service has been "substantially eliminated" and that the rate of increase in total customers is beginning to slacken. Heavy industrial production, recently stimulated by ERP and defense loads, also has contributed to the growing load, the statement declared.

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Wages of Non-Office Utility Workers Up 30% Since '45

Wage rates for non-office workers employed by privately operated electric utilities rose 30% between July, 1945, and last April, according to a survey by the Bureau of Labor Statistics.

The study of 130 Class A and B private electric utility companies, employing 194,000 workers, made during last March and April, showed the average hourly rate for non-office workers to be $1.35. In gas utilities, the average is $1.29. Only 0.2% of the workers were getting less than 65¢, only one out of every eight earned less than $1. One out of every three earned $1.50 or more, and 3% earned at least $2.

BLS reported considerable variation in wage level in what it calls "the nine economic regions." It found these averages in hourly wage rates by regions: Pacific Coast—$1.64, Great Lakes—$1.43, New England—$1.39, Mountain Region—$1.37, Middle Atlantic—$1.33, Middle West—$1.26, Border Region—$1.26, Southwest—$1.21, Southeast—$1.17.

The border region consists of Maryland, Delaware, District of Columbia, Virginia, West Virginia, and Kentucky.

Highest paid non-office workers are journeymen linemen, who averaged $1.61 an hour, exclusive of overtime and shift premiums. Substation operators averaged $1.53 and meter readers $1.18. These are national averages, with rates for particular jobs varying by regions.

Journeymen linemen, for instance, averaged $1.87 on the Pacific Coast; yet, in the other eight regions, the rates for the same work ranged between $1.47 in the Southeast and $1.63 in the Great Lakes.

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Co-ops Held Tax-Subject

Florida's rural electric cooperatives are subject to the same occupational license taxes as private utilities, Attorney General Tom Watson has ruled. He said he could find no state or federal law that would exempt them.

TELEVISION on Boston Common proves popular with those who are interested in the World Series. RCA Victor set up 100 52-sq-in. screen sets. Over 3 miles of cable were laid for the installation. RCA shared the expense with the Gillette Safety Razor Co

Meter Component Standardization Discussed by EEI-AEIC Groups

STANDARDIZATION of meter blocks, meter boxes, socket trough dimensions, corrosion finishes, and current-transformers was a primary activity at the meetings of Edison Electric Institute and the Association of Edison Illuminating Companies Meter and Service Committees in Raleigh, N. C. Oct 5-6.

Among other topics was a proposed reorganization of the EEI subcommittees' scopes, creating a group to which could be referred the utility company tests, analyses and reactions to major new metering devices brought out by the manufacturers. The latter reported full-tilt production with continued shortage of steel but a prospect of shelf stocks in not too many months. Meter output was reported to be 75% in excess of the added customer rate but no sign of slackening in demand was seen.

Preference was expressed for indoor bar type current transformers with 0.3% accuracy and for 4-inch bars with widened hole spacing to avoid interference of lugs. Corrosion-resisting finishes should, it was felt, be standardized, but specially capable finishes should be made available for areas particularly subject to extreme corrosion. It was reported that improvements in design of metal-clad switchgear had rendered the instrument transformers more accessible. Melamine of superior arc-tracking resistance will soon begin to be substituted for prevailing materials in meter terminal blocks.

O. K. Coleman, EEI consultant, explained the setup and procedure of the newly constituted NEC authority. In the AEIC session R. B. Swallow, Public Service Electric & Gas Co. Newark, outlined the clarified policy under which triple joint committees (NEMA the third party) would function.

Incidental items mentioned were: (1) the problem of service attachments to "solar ranch houses" with low eaves, (2) a successful ¾-ton truck with standardized "trouble" body for 2-man service and meter crews, (3) Westinghouse announcement of decision to relinquish at once almost all patent jurisdiction over sockets and a continuing program of licensing the manufacture of socket troughs, (4) the fact that unstable and uncertain costs of Neoprene and cotton products were interfering with orderly development of a desired service cable.

At a luncheon session, President L. V. Sutton Carolina Power & Light Co, told the 75 metermen and guests that electricity had been a major but unappreciated factor in building the nation's greatness. Its growth from 58 customers to 40,000,000 in 66 years covered one-third the span of our unparalleled history. As for the accusation that the industry never knew what it was to make rate reductions until TVA came, he said that rates were cut to one-fourth from Garfield's time to Roosevelt's.

In the joint session manufacturers announced immediate or early availability of new devices. Westinghouse has a new outdoor current transformer; Duncan, combined and separate thermal demand and watthour meters; Eastern Specialty, a loss-metering compensator (as developed in Philadelphia Electric); and Anchor, a vinylite shield for insulating socket prongs and an adapter for quick changeover in testing A and S type meters. The States company jack is being made of copper instead of aluminum. General Electric told of (1) a cyclometer register for the new I-50 meter, (2) an M-30 demand register with Geneva quick-return movement (3) a combination thermal watt demand and watthour meter and (4) a combination thermal volt-ampere demand and watthour meter, actually an ampere-demand meter with voltage compensation. It was reported that I-50 meters in all ratings will be in complete production by March and that manufacture of the I-30 meter would continue as long as orders keep up.

The metermen's handbook will be published early in 1949. The next meeting of both committees is planned for New England next May.

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Plans Made for Possible Curtailing of Power Use

A plan for informing all customers if immediate curtailment of power usage should be necessary has been completed by Commonwealth Edison Co, Chicago.

It will utilize both direct contact of large users by company personnel and radio announcements to smaller consumers. Radio time now devoted to spot advertising announcements will be available for the latter purpose.

Company officials reported that demands for power at times of peak load are likely to equal available generating capacity at least until late next spring, when a new 150,000-kw unit will go into service at the company's Fisk station.

The program will provide for sharing of load reduction by all users in case of a temporary shortage, such as occurred Sept 8, or the emergency repair of equipment. The Sept 8 crisis was met through a prearranged plan under which a group of industrial and commercial customers curtailed their use.

FISCHER S. BLACK, editor of "Electrical World" and general chairman of the Middle Eastern District meeting of the American Institute of Electrical Engineers, opens one of the sessions. Left to right at the speakers table are Dr. F. B. Silsbee, chief of the Division of Electricity and Optics, National Bureau of Standards; Everett S. Lee, General Electric Co, AIEE president; William McClellan, AIEE president, 1921-22; C. A. Powel, Westinghouse Electric Corp, AIEE president, 1944-45; and H. H. Henline, AIEE secretary

Power Subjects Given Minor Place on AIEE District Meeting Program

MARINE AND AIR transportation topics held the spotlight during the three-day Middle Eastern District meeting of the American Institute of Electrical Engineers last week at Washington, D. C.

Half the 20 technical sessions and a majority of the 75 papers were devoted to marine, air, and naval subjects. Among the other topics of national interest were rural electrification, governmental relations, and nuclear engineering.

While power subjects were in the minority at the meeting, there were several papers of particular interest to the electric power industry.

Wade M. Edmunds and Glenn B. Roloson of the Rural Electrification Administration described REA's plans to increase its standard distribution voltage from 12,470/7,200 v to 23,900/13,800. Cost of distribution transformers is one of the limiting factors in making the transition, they reported. Service tests showed that 15-kv class transformers would operate satisfactorily with the same arresters that would be used if the transformers were delta connected. Manufacturers, however, did not guarantee their 15-kv insulation for this service. Savings of 15 to 34% are indicated with the change in distribution voltage when using the 15-kv class transformer.

W. F. Bonwit, Burndy Engineering Co, reported experiments with the electrical performance of bolted aluminum-to-copper connections. He found that bolted aluminum-copper bus connections with an electro-tinned, flowed finish will give a low resistance joint that is reasonably stable under extreme high temperatures and corrosive attack. Penetrox "A," he reported, will improve and stabilize contact conditions, but it is not superior to an electro-tinned surface.

Wind power and underground gasification of coal were singled out by Percy H. Thomas of the Federal Power Commission as methods of developing potential resources that are likely to affect future methods of power production. Wind power has many special advantages, according to Thomas. "It is flexible enough so that sites may be chosen to relieve the strain on transmission. It fits in well with other power sources. In coordinated use with hydroelectric storage projects where the reservoir acts as a sort of storage battery during periods of low wind velocity, it offers firm power that is not feasible when wind energy is used alone."

Wind generators may be constructed with ratings of several thousand kilowatts per unit at a cost comparable with that of steam-electric units, Thomas said. Production of units of a standard rating and specification should do much to bring about lower costs and so encourage wider usage.

Development and use of the magnetic fluid clutch was described by Jacob Rabinow of the National Bureau of Standards. Various types of clutches were described. It is believed that the two most important applications will be in the automotive industry and in servomechanisms.

'Overtime on Overtime' Again Upheld by Court

Any upset of the U. S. Supreme Court's much-debated "overtime on overtime" decision will have to come from Congress.

The court rid itself of the issue this week when it denied a rehearing asked by the Department of Justice for reconsideration of the 5-3 decision handed down last June 7 against Bay Ridge Operating Co and Huron Stevedoring Corp.

Already the Senate Judiciary Committee has tentatively set Nov 15 for hearings on proposed legislation that would nullify the Supreme Court's finding that time-and-a-half pay for working nights or at other odd hours is not really "overtime" even though it may be called that in a union contract. The court held that time-and-a-half must be paid on that fictitious "overtime" if the employee works more than 40 hours in a week.

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Voters Reject Franchise

A 10-year franchise for the Missouri Power & Light Co was rejected recently by citizens of Bucklin, Mo., at a special election. The company has operated there for the past nine years without a franchise.

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Dade City to Make Offer

Dade City, Fla., is seeking to buy the Pasco County division of the Tampa Electric Co. The city commission will submit an offer to the utility when the latter's board of directors meets Oct 27.

Buffalo Niagara to Spend $59,770,000 on Expansion

A $59,770,000 expenditure is being made by the Buffalo Niagara Electric Corp for generating stations, transmission lines, and general improvements. That was revealed in a tabulation of additions to fixed capital submitted at a New York Public Service Commission hearing on the company's application to borrow bank money for construction.

These projects will increase the value of Buffalo Niagara's plant by approximately one-fourth. Its fixed assets now are around $230,000,000.

A large part of the outlay is for new steam-electric facilities at Dunkirk. Total cost of the two Dunkirk units will be $27,750,000, with the first one scheduled for completion by December, 1950. This year the company will spend $2,200,000 there; next year, $12 200,000; and in 1950 or 1951, $13,350,000.

Indicating how construction costs have risen, the addition of 80,000 kw of generating capacity at the Huntley Station in Buffalo is costing Buffalo Niagara $10,810,000. The original estimate was $7,200,000. Power from this addition is expected to be available in November, relieving the pressure on the utility to meet a load so heavy that industries have been asked to curtail power use by 15%.

Almost $300,000 will be spent before 1952 for modernization of street lighting in Buffalo. Other amounts being spent between 1948 and 1952, inclusive, for various purposes, follow:

Transmission stations, $2,843,200; transmission lines $1,507,000; distribution stations, $3,954,900; distribution lines and services, $6,589,800; street lighting, $1,250,000; line transformers, $2,567,800; and meters, $1,297,700.

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August Power Production Hits New Monthly High

Power production by electric utilities during August, 1948, climbed to a new monthly high of 24,228,710,000 kwhr, the Federal Power Commission reports. This represented an increase of 1.1% above the previous record set in January, 1948. The August total was 11.4% more than the 21,743,754,000 kwhr produced during August, 1947, and 4.1% higher than the July, 1948, figure.

Water power plants produced 6,734,816,000 kwhr in August, an increase of 11.3% over the 6,053,377,000 kwhr monthly production of a year ago. As a percent of August total production, however, water power output was unchanged at 27.8% from last year.

Combined utility and industrial production during August was 10.7% above the same month last year and for the year ended Aug 31, 1948, was 10.2% above the same period a year earlier.

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Atomic Power Division Formed by Westinghouse

Westinghouse Electric Corp has announced the formation of an Atomic Power Division, which will concentrate

CHARLES H. WEAVER

solely on the harnessing of nuclear energy for the production of useful power.

Charles H. Weaver, who has been industrial manager of Westinghouse's Central District, has been made manager of the new division.

In making the announcement, Gwilym A. Price, Westinghouse president, said the new division "will be available to undertake atomic energy projects for the United States Government as well as to carry on independent studies. It will conduct research, development, engineering, and any necessary associated construction." It will work closely with the Westinghouse Research Laboratories and with other divisions of the company so as to benefit from their knowledge, experience, and facilities. The location and other details of the department's organization will be announced later.

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Enough Income Indicated

Revenues of the proposed peoples utility district at Rainier, Ore., would be sufficient to pay operating costs and retire an investment of $234,000, according to a report by the Oregon Hydroelectric Commission. The area is now served by the Pacific Power & Light Co, which serves 529 customers over 9.54 miles of electric line.

St. Lawrence Hydro Plant Nears FPC Approval

New York Power Authority's proposed hydroelectric plant in the St. Lawrence River passed its first regulatory hurdle last week (Oct 7). Federal Power Commission closed hearings on the project and immediately called for filing of briefs within a month—about par for the FPC course of action on hydro projects.

There seemed little doubt that the Commission was heading toward eventual approval of the development, which the New York agency plans to build jointly with the Hydro-Electric Power Commission of Ontario. There also is a possibility that opponents, such as the National St. Lawrence Project Conference, may take a favorable FPC decision into the courts. Spokesmen for the Conference already have challenged FPC's authority to license the development.

President Truman may continue to oppose any St. Lawrence development without extensive navigation improvements, as contemplated under plans for an international seaway project. The State Department apparently has decided to await White House approval before sending the proposal to the International Joint Commission, which must render the final decision.

The Ontario commission's representatives reported they already had petitioned their government to present the project plans to IJC. Canada has no licensing body comparable to FPC.

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Electric Utilities Operating Revenues Rise 14.1%

Electric operating revenues of the larger privately-owned electric utilities in the United States in July, 1948, were $332,902,000, compared with $291,780,000 in July, 1947, an increase of 14.1%, the Federal Power Commission reports.

Revenue deductions (including operating expenses, depreciation and taxes) were $273,856,000, or 15.9% over those of July, 1947.

Gross income, including other utility operating income, amounted to $63,418,000, an increase of 5.8% for the month. Net income was up 9.1% to $43,589,000 from the $39,958,000 reported for July, 1947.

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Voters Okay Franchise

Pierce City, Mo., voters have approved a 10-year electric power franchise for the Empire District Electric Co, Joplin.

SEC RULINGS

ATLANTIC CITY (N. J.) ELECTRIC Co has received permission to borrow an additional $750,000 from Irving Trust Co and Guaranty Trust Co of New York. The borrowings will be made on 1½% and 1¾% promissory notes, due Dec 31, 1950. (Release No. 8510).

KANSAS ELECTRIC POWER Co's application, filed jointly with Kansas Power & Light Co, its parent, covering the sale of 15,500 shares of its common stock, no par value, to Kansas Power for a cash consideration of $42 per share, aggregating $651,000, has been approved. Kansas Power (which presently owns all of the outstanding common stock of Kansas Electric) proposes to acquire such 15,500 shares of common stock and also proposes to make a capital contribution in the total amount of $549,000 to Kansas Electric on or before Dec 1, 1948. Proceeds from the sale of its common stock and the funds from the capital contribution will be used by Kansas Electric for construction and for the payment of $550,000 of outstanding short-term bank loans incurred in financing construction. (Release No. 8450-A).

UNITED PUBLIC SERVICE CORP, a subsidiary of Middle West Corp, has been authorized to make two cash distributions to stockholders from funds to be received from liquidating dividends of $4 and $5 to be paid by United. After receiving the $5 payment, United Public Service will distribute $2.42 a share and will pay an additional $1.93 after receipt of the $4 payment. The commission stated that this is part of the company's plan for liquidation under the Holding Company Act. (Release No. 8514).

KENTUCKY UTILITIES Co's proposal to issue and sell 125,000 shares of its common stock of the par value of $10 per share to the Middle West Corp, parent, for a consideration of $1,250,000 payable in cash, has been approved. Net proceeds of the sale will be used by Kentucky for additions and extensions to its electric utility plant and system. (Release No. 8540).

PUBLIC SERVICE CO OF INDIANA, INC, has received permission to increase its common stock from 2,000,000 to 5,000,000 shares. The new shares will be offered to present stock holders at the ratio of one additional share for each share now held. (Release No. 8541).

INTERSTATE POWER Co has received commission approval of the sale of $5,000,000 principal amount of first mortgage bonds due 1978. Proceeds from the sale of the bonds are to be used (a) for the repayment of presently outstanding indebtedness in the amount of $2,400,000; (b) the deposit of $376,000 with the trustee under the indenture securing Interstate's bonds, which cash is to be available for withdrawal by Interstate on the basis of property additions and (c) the reimbursement of the treasury of Interstate for working capital, to discharge obligations for construction, and to pay balances due on property leased with an option to purchase. The commission reserved jurisdiction with respect to the payment of any and all fees and expenses incurred, or to be incurred, in connection with the consummation of the proposed transactions. (Release No. 8543).

GENERAL PUBLIC UTILITIES CORP has been authorized to purchase 2,725 outstanding shares of preferred stock of Staten Island Edison Corp of New York. The purchase will be made from New York State Electric & Gas Corp, Ithaca, N. Y., a subsidiary of General Public Utilities Corp. Purchase price is $272,500. (Release No. 8548).

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Lighting Contract Signed

Pittsburgh and the Broadway Maintenance Corp have signed a contract for the installation and maintenance of a new street lighting system. Duquesne Light Co, which now supplies lighting fixtures and power under a "blanket" contract, has appealed to the Superior Court a Public Utility Commission order approving the new system.

MEETINGS

PREVIOUSLY LISTED

American Institute of Electrical Engineers—Midwest General Meeting, Hotel Schroeder, Milwaukee, October 18-22; Southern District Meeting, Tutwiler Hotel, Birmingham, Ala., November 3-5.

American Standards Association—Annual meeting, Waldorf-Astoria Hotel, New York, October 20-22.

Pennsylvania Electric Association—Meter Committee, Penn-Alto Hotel, Altoona, October 20-21; Electric Equipment Committee, Americus Hotel, Allentown, October 21-22; Prime Movers Committee, Carver House, Warren, Pa., October 28-29.

Missouri Valley Electric Association—Accounting Conference, Connor Hotel, Joplin, Mo., October 21-22; Engineering Committee, Hotel President, Kansas City, Mo., October 26; Rural Round Table, The Elms, Excelsior Springs, Mo., October 27; Sales and Rural Conference, The Elms, Excelsior Springs, Mo., October 28-29.

Southeastern Electric Exchange—Accounting Section, Sir Walter Hotel, Raleigh, N. C., October 28-29; General Sales Conference, Atlantic Biltmore Hotel, Atlanta, Ga., November 10-12.

Wisconsin Utilities Association—Commercial and Technical Divisions of Electric and Gas Sections, Pfister Hotel, Milwaukee, November 1-3.

National Electronics Conference—Edgewater Beach Hotel, Chicago, November 4-6.

Public Utilities Association of the Virginias—Annual Meeting, Greenbrier Hotel, White Sulphur Springs, West Virginia, November 5-6.

National Electrical Manufacturers Association—Annual Meeting, Hotel Traymore, Atlantic City, November 8-13.

National Farm Electrification Conference—Congress Hotel, Chicago, November 17-19.

New Jersey Utilities Association—Annual Meeting, Seaview Country Club, Absecon, November 18-20.

American Society of Mechanical Engineers—Annual Meeting, Hotels Pennsylvania and New Yorker, New York, November 28-December 3.

National Exposition of Power and Mechanical Engineering—Grand Central Palace, New York, November 29-December 4.

National Electrical Contractors Association—Annual Meeting, Roney Plaza Hotel, Miami, Fla., November 30-December 3.

Special War Rate to End for Niagara Falls Power

Revised schedules increasing to more than 3 mills per kwhr the rates for certain special power furnished to industrial customers have been authorized for the Niagara Falls Power Co by the New York Public Service Commission.

Niagara Falls Power supplies power wholesale to large industrial customers in the Niagara Falls area and to its parent, Buffalo Niagara Electric Corp. The new rates, upon an interim basis, will remain in effect until Aug 31, 1949. Present rate is 1 mill per kwhr.

This special power is derived from diversion in excess of 20,000 cu ft of water per second from the Niagara River under a special FPC license. During the war the energy thus produced was allocated to about 25 large war industries. The one-mill rate, lowest on record in the United States or Canada, was fixed by the Commission during the war to yield Niagara Falls Power the cost of production only.

The Commission opinion points out that a one-mill rate is unjustly undiscriminatory, since the bulk of the hydroelectric power produced by the company is being supplied at rates from 3 up to about 5½ mills per kwhr. Most of the industries using one-mill power, however, also receive power at the higher rates.

Company officials testified the increase will yield additional revenues of about $1,800,000.

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Kansas Utility Water Bill Serves as Bank Check

The Water & Refuse Department of El Dorado, Kan., is now using a bill which may be used as a bank check for payment.

Basis of the new bill is an ordinary reply card, which can be secured at any post office. The bill is printed on the back. The arrangement is that commonly used by utilities. However, there are three additional blank lines. To use the bill as a check, the customer writes his own check number on the first line, the name of his El Dorado bank on the second, and signs his name as he does on his other checks on the third. The reply card is mailed to the Water Department, which handles it like any other check. The cancelled reply card is returned to the customer by the bank with his regular checks.

The other half of the reply card is used by the city to carry any message to the customer that the city administration desires.

Ontario Hydro Tightens Brownout Restrictions

The brownout in Southern Ontario has become browner. Daily interruptions of power have made their appearance, and the brownout regulations in effect since Sept 13 are to be made more severe. The Hydro-Electric Power Commission of Ontario has been forced to limit its municipal customers because of the drought in Quebec, from which some of its power comes.

Reductions which the Commission plans to put into effect follow:

Limit on store lighting to be dropped from 2 to 1 w per sq ft, shop windows from 20 to 10 w per lineal foot of width, office buildings from 2½ to 1 w per 100 sq ft; protection of property after business hours from 60 to 40 w per shop or office. Similar reductions were ordered for other commercial users.

Consumers have cooperated in every way, but labor has started to present another problem. Unions, which first agreed to shifting of working hours to nights and Sundays without premium pay, have now demanded the premiums included in their contracts.

The first interruption took place last week at Belleville, when two one-hour cutoffs, five days a week, began. The cutoffs are spreading to other towns in the systems, but the blackout time varies.

Ontario Hydro has announced that it will help finance the reconditioning of any industrial steam-generating equipment which might be used to alleviate the shortage of power.

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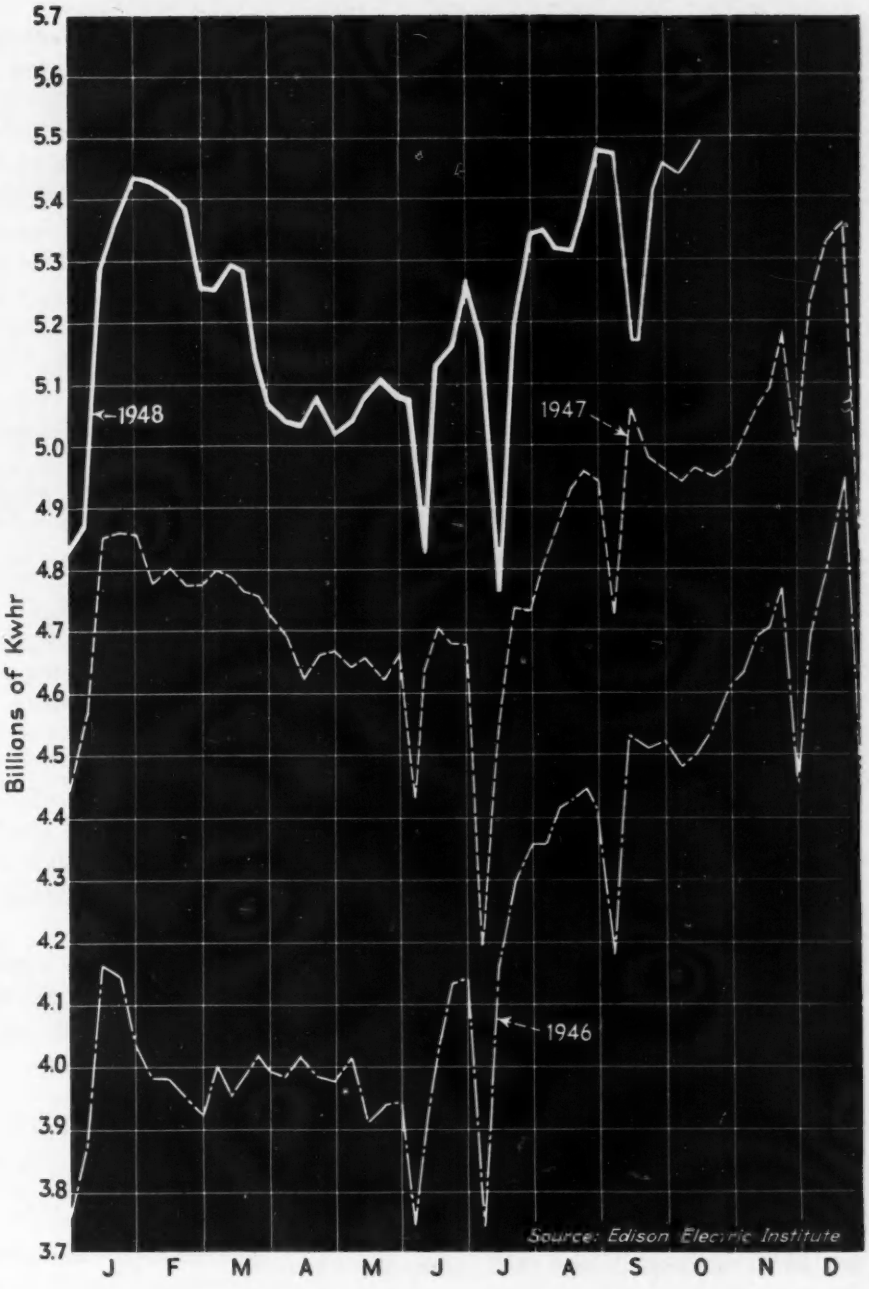
Planned Lighting Aids Available for Promotion

Six new promotional and educational aids have been completed to supplement the Planned Lighting Program of the electrical industry. They were prepared under the sponsorship of the Edison Electric Institute and Better Light Better Sight Bureau at the request of electric utilities engaged in Planned Lighting promotion.

The new materials consist of a customer booklet with ideas for modernization of existing home lighting, a folder offering suggestions for better light for children's study areas in the home, a folder containing lighting ideas for customers now planning to build or remodel homes, and a series of three mailing pieces on Planned Lighting for food stores. Sample copies are available to electric utility companies upon request to the Edison Electric Institute, 420 Lexington Avenue, New York 17, N. Y.



5.48 Billion Kwhr New Output Record

A new output record of 5,481,632,000 kwhr was set by the nation's central stations for the week ended Oct 9. The new record toppled the one that has stood only since the week ended Aug 28. The total for that week was 5,477,741,000 kwhr.

With the growing demand for electricity during the approaching winter peak, the new record is likely only to be the first of a lengthy series. If the present trend continues, output for the week preceding that including Christmas day will top 5.8 billion kwhr.

For the week ended Oct 9, all sections of the country reported substantial increases over that of the corresponding week a year ago. For the entire United States, the increase was 10.6%. The Rocky Mountain states led all other regions with a 14.1% increase, and New England was lowest up 6.4%.

Weekly Output, Millions Kwhr

1948		1947		1946	
Oct 9	5,482	Oct 11	4,958	Oct 12	4,495
Oct 2	5,449	Oct 4	4,935	Oct 5	4,478
Sept 25	5,461	Sept 27	4,956	Sept 28	4,518
Sept 18	5,426	Sept 20	4,977	Sept 21	4,507
Sept 11	5,166	Sept 13	5,053	Sept 14	4,521
Sept 4	5,470	Sept 6	4,721	Sept 7	4,184
Aug 28	5,478	Aug 30	4,940	Aug 31	4,404
Aug 21	5,391	Aug 23	4,953	Aug 24	4,444
Aug 14	5,318	Aug 16	4,923	Aug 17	4,422

Percent Change from Previous Year

	Oct 9	Oct 2	Sept 25
New England	+ 6.4	+ 5.5	+ 6.4
Mid-Atlantic	+ 7.4	+ 7.3	+ 5.9
Central Industrial	+11.1	+ 9.8	+10.0
West Central	+ 9.2	+12.8	+15.2
Southern States	+11.6	+13.3	+13.3
Rocky Mountain	+14.1	+ 9.3	+ 9.4
Pacific Coast	+12.8	+12.1	+10.2
Total United States	+10.6	+10.4	+10.2

IN THE INDUSTRY

RICHARD N. LARKIN

IT'S BEEN a common accusation for years that the Reclamation Bureau's chief aim is to put power on transmission lines, not water on the land.

But, according to Presidential Candidate Harry Truman, the fact is pretty plain that since 1932, Reclamation has been putting an astonishing amount of power on the line, while doing little more than was ever done about putting water on the land. Here's the record:

In Seattle, on June 10, Truman said, in part:

"Prior to 1933, the Reclamation Act had been on the books for 30 years. In all that time, water for Reclamation had been extended to less than 3,000,000 acres throughout the West, and the hydroelectric power capacity installed on these projects was only 35,000 kw."

In El Paso, on Sept 25, Truman said, in part:

"In 1933, the Democrats took the Reclamation program out of mothballs and put it into practice. . . . Today, Reclamation projects irrigate 4,500,000 acres of land and provide more than 3,000,000 kw of power."

It takes no electronic brain to figure that if about 3,000,000 acres were irrigated in 31 years, and another 1,500,000 acres were irrigated in the subsequent 15 years, then there was little difference in the rate at which water was put onto the land per year before and since 1933. And so, if the GOP had the Reclamation program in mothballs during its tenure, the Democrats didn't do much about taking it out.

On page 73 of the Interior Department's (current) annual report for 1947, it is to be seen that in the 31 years between enactment of the Reclamation Act in June, 1902, and the advent of the Democrats in 1933, a total of 2,769,605 acres of land were irrigated. Dividing this total by 31 shows an average of 89,342 acres per year. On the same page of the same document, one learns that from 1933 through 1946, a total of 14 years, the total irrigated acreage rose to 4,321,969, an increase of 1,552,364 acres. Dividing through again, we get an average of 110,883 acres per year. This is 24% higher than the rate at which land was irrigated during the first 31 years the Reclamation Act was on the books.

Of course, there are certain qualifications that could take some of the shine off that 24% increase. For one thing, the 59,182-acres increase in irrigated acreage which was achieved in 1933 over 1932 must have been due entirely to work begun before the Democrats took the program out of mothballs. Perhaps part of the 1934 increases were the same. Also, Interior's 1947 annual report shows no irrigated acreage before 1906, so perhaps the 1932 total should be divided by 27 years instead of 31, which would give a pre-1933 rate of 102,577 acres irrigated per year, or an 8.2% increase for the post-1932 irrigation efforts over the pre-1933 efforts.

There are other qualifying factors that might make the margin even less impressive. But, like those exceptions just cited, they'd prove nothing more than that figures lie and liars figure—in and out of Presidential years. But look at the increase in power! There were 40,300 kw installed in Reclamation plants at the end of 1932. The best current figure we can find for Reclamation today is 2,500,137. That figures out to 1,300 kw yearly from 1902 through 1932, and 178,581 kw yearly since. Power has gone in at 137 times the pre-1933 rate, while irrigation, at best, has stepped up only 24%.

TECHNICAL TRENDS

ARCHER E. KNOWLTON

Consumer demands can, of course, be limited automatically if the need arises but the problem is to devise a remedy which will not be as uncomfortable as the ailment.

Microwave line-of-sight limitations mean that transmitting and receiving antennas should clear trees and terrain by 50 ft or more to avert casual absorption and spurious reflections.

Aluminum is proving practicable as a cable sheath but not yet as a complete supplanter of lead. Snugness of fit, bends, reeling and mechanical jointing are said to be no problem.

Gas from lignite is proving successful in a Bureau of Mines pilot plant in the Dakotas. There are 900 billion tons of lignite in that area.

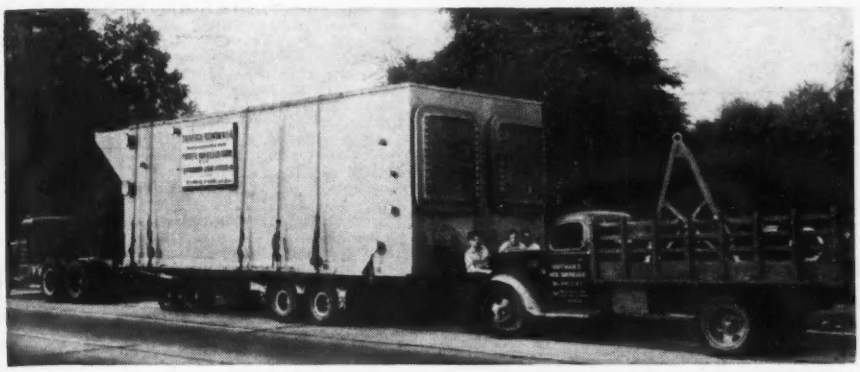
Sheath conductivity of shielded cables may be anything between full-conductivity and non-conductivity. Sooner or later it may be desirable to indentify the degree of conductivity for safety considerations.

Faults on primaries should be identified as harmlessly transient or damagingly persistent. Station apparatus for automatic fault-response should not make performance worse because of ignorance about troubles that can be cleared.

Pulverizer starting torques are manifestly hard to determine or predict but more needs to be learned and disclosed if the motors are to be appropriate in rating and characteristics.

Color-code wire is also handy for meter wiring but combinations are too numerous and too individualistic to warrant much more than standardization of the pairings —not the specific applications.

MANUFACTURERS and MARKETS



ON ITS WAY to the new plant of the Rockland Light & Power Co at Tomkins Cove on the Hudson is this 72-ton reverse flow condenser, which will form the base of the largest condenser-mounted turbine-generator (20,000 kw) ever built in this country for stationary power plants. The condenser was made at the Carteret, N. J., plant of Foster Wheeler Corp

Launches International Student Training Plan

Worthington Pump & Machinery Corp has launched an International Student Training Program at its Harrison, N. J. Works where early in October about 25 students from various parts of the world gathered to embark on a six-months' training program.

The students will spend three months at Harrison for complete training on pumping equipment, condensers, feedwater heaters and water-softening equipment; then two months at Buffalo Works, for training on Diesel and gas engines, compressors and power transmission equipment. Upon completion of their study at Buffalo, they will go to Wellsville, N. Y., and Holyoke, Mass., for study of steam turbines, portable compressors, rock drill equipment and related components, as well as air-conditioning and refrigeration equipment.

Among the countries represented are Uruguay, China, Chile, Egypt, Cuba, Holland, Siam, France, Mexico and Canada.

"We recognize that the need for this interchange of technical ideas between the United States and foreign countries is greater now than ever before," said S. Riley Williams, vice-president in charge of foreign operations. "A closer understanding is becoming more and more possible by the interchange of technical students, helpful not only to those who come here for training and through what they learn about American industry but also through what we learn from them about their countries and about their people."

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C. M. Hall Sells Radiant Heat Division to Triangle

C. M. Hall Lamp Co, Detroit, Mich., has sold its radiant heat division to the Triangle Equipment Co, Nutley, N. J. This move was necessitated by the expansion of Hall's automotive lighting production. The nationwide sales organization of the Radiant Heat Division is being taken over by Triangle, which contemplates no change in sales or service policies.

C. S. Cogger, manager, radiant heat division and F. T. Thayer, engineer, are leaving the C. M. Hall Lamp Co to join the Triangle Equipment Co in its expansion program.

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1,400 Graduates Join GE

A record number of more than 1,400 graduates of 150 colleges and universities have been hired by the General Electric Co this year, surpassing by almost 600 the previous high mark of last year. Expansion of the company, coupled with the effects of the wartime shortage of graduates, led to selection of this record number, Maynard M. Boring, assistant to the vice-president in charge of engineering policy, stated. Of this group, 1,046 are electrical, mechanical and industrial engineers.

Westinghouse Plants Win Safety Council Awards

Eleven plants of the Westinghouse Electric Corp have received one of the nation's highest industrial honors, the Distinguished Service to Safety Award of the National Safety Council.

The National Safety Council grants awards annually to companies which have had outstanding accident prevention programs and whose plants show a commendable reduction in accidents, an above-average safety record or one million man-hours of work without a disabling injury.

The Westinghouse award-winning plants, whose 25,000 workers make products ranging from electric appliances to steam turbines, established a safety record for the year 1947 three times better than the average for the entire electrical industry. With 50 million man-hours worked during the year, an average of only one disabling injury occurred for every two million man-hours.

Plants cited include East Springfield, Mass.; Sunbury, Pa.; South Philadelphia, Pa.; Newark, N. J.; Lima, Ohio; Baltimore, Md.; Lansdowne, Md.; Chicago, Ill.; Atlanta, Ga.; St. Louis, Mo.; and Philadelphia, Pa.

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Safety Films Directory

A National Directory of Safety Films has been prepared by the National Safety Council in cooperation with Business Screen Magazine. The directory contains a comprehensive listing of 403 motion pictures and slidefilms, both sound and silent, for safety education within business and industry, on the farm, in homes and schools and on the streets and highways. The films are classified and indexed, with film synopsis, type, source and availability for purchase, rental or loan. The directory can be obtained from the National Safety Council, 20 North Wacker Drive, Chicago 6, Ill., price 25c.

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Buys Appliance Company

Announcement has been made of the purchase of the Nash-Kelvinator interests in the Appliance Manufacturing Co, Alliance, Ohio, by the Dexter Wash-

ing Machine Co, Fairfield, Iowa. Dexter and Nash-Kelvinator had owned the Appliance company jointly. The company also manufactures washing machines.

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Manufacturers Make New Sales Assignments

Electrical manufacturing companies have recently made the following appointments to their sales staffs:

Appleton Electric Co, Chicago, has appointed Bruce Bennett its representative in the state of Indiana and in the cities of Danville and Mattoon, Ill. He will make his headquarters at 5831 Dewey Av, Indianapolis.

Electric Power Equipment Corp, Philadelphia, has appointed Lawrence L. Weldy sales representative for northern Illinois, Iowa, eastern Wisconsin, Gary (Ind.) and surrounding territory. Mr. Weldy's address is 4201 West Irving Park Road, Chicago 41, Ill.

Larkin Transformer Division, Larkin Lectro Products Corp, New York, has named J. E. Snyder, 30 Church St, New York, to represent it in New York State, northern New Jersey and eastern Pennsylvania, excluding Philadelpha.

Bright Light Reflector Co, Inc, Bridgeport, Conn, has appointed the L. W. Roberts Co with offices in Richmond, Va, and Greensboro, N. C., as representatives in those two states. L. Morris Landers Co, Atlanta, will act as representative covering Georgia, Mississippi, Alabama, Florida, Tennessee and South Carolina.

Admiral Corp, Chicago, has assigned distribution rights for the company's electric ranges and refrigerators, radios, phonographs and television sets for 70 Iowa counties to the Bi-States Distributing Corp, 2 Tenth St, Des Moines.

A.J.F. Industries, Inc, Brooklyn, N. Y., has appointed the following representatives: A. Weingarten & Bros, Virginia, Maryland and the District of Columbia; E. B. Rouser, Minnesota; D. J. Campbell, Wisconsin; Manufacturers Sales Co, North Carolina, South Carolina, Georgia and Florida and M. Shrimpton, Upper New York State.

American Steel & Wire Co has established four new district sales offices following the creation of a new and separate sales division to handle the electrical wire and cable products of the company (EW, Aug 28, Page 120). They include Boston to serve the New England district, Cleveland to serve the Central district, Chicago to serve the Western district and New York to serve the Eastern district. Appointees are C. H. Currier, manager, New England district, electrical products sales; V. W. Heimberger, Central district; R. A. Coates, Western district and C. M. Vaill, Eastern district. Appointment of three district electrical sales engineers to serve in the new electrical products division have also been announced. They are Curtis E. Plass, Western district, Chicago; Walton P. Lewis, Central district, Pittsburgh; and Harry E. Purdy, Eastern district, New York.

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

California—Bureau Reclamation, Bldg. 1A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars Bethany, one 3 phase and 3 single phase, current-limiting, air-cooled, air-core reactors for Tracy Switchyard, Central Valley Proj., Spec. 2426, L. N. McClellan, ch. engr.

Colorado—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., carrier-current telephone apparatus, coupling capacitors, and carrier-current line traps, Colo. Big Thompson, Kendrick, and Missouri Basin Projs., Spec. 2428.

Illinois—U. S. Eng., 826 U. S. Courthouse and Custom House, 1114 Market St., St. Louis 1, Mo., constructing, installing power, control, lighting sys. Lock 27, Mississippi River (Chain of Rocks Canal), Madison Co. near Granite City, and near east bank of Mississippi R ver Miles 186 and 187 above mouth of Ohio River, incl. power supply equip., switchboards, control benchboards, wire and cable, power, control equip. for operating machines, lock and gallery lighting sys., building lighting and heating, signal and communication sys.

Nebraska—Wayne County Rural Public Power Dist., Wayne, rural distr. lines Wayne and Pierce Counties. **$110,000.** Henningson Eng. Co., Standard Oil Bldg., Omaha, consult. engr.

New York—Triborough Bridge & Tunnel Auth., at Engineers' Office Bldg., 10 State St., New York. Zone 4, electric installation for Brooklyn-Battery Tunnel, Contr. BBT-12. Plans deposit $25.

N. C., Shelby—Town, H. S. Woodson, mayor, voted bonds, expanding cities electric distr. sys. **$130,000.**

N. C., Washington—City, L. H. Swindell, mayor, and Board Alderman, Washington, Sect. 1, converting approx. 1 mi. 2,400 volt line to 13,200 volt: Sect. 2, constructing 2 mi. 13,200 volt line within city limits, Sect. 3, 1 mi. 13,200 volt line from 5 St. to River Cross; Sect. 4, changes in existing 2,400 volt lines in city: Sect. 5, erecting substation structure and distr. lines around power plant. Plans deposit $20. Wm. C. Olsen, 5 Exchange Pl., Raleigh, engr.

North Dakota—U. S. Eng., P. O. Box 300, Fort Lincoln, Bismarck, central heating and power plant, Garrison Dam and Reservoir, Riverdale, Inv. No. Eng-32-015-49-34. $600,000-$700,000.

Texas—Dickens County Electric Cooperative, Spur, 342 mi. rural distr. lines, Dickens Co. **$435,000.**

Texas—Coleman County Electric Cooperative, Coleman, 227 mi. rural distr. lines, new tie-line enlarging co-op. headquarters, Coleman Co. **$550,000.**

Tex., San Antonio—City Pub. Service Bd., 201 N. St. Marys St., addnl. electric power plant unit on Leon Creek location. **$2,750,000.**

Washington—Bonneville Power Admin., 729 N.E. Oregon St., Portland, Ore., Olympia Substation, 2 mi. west of Tumwater, Thurston Co., Inv. No. 4318. Plans deposit $25.

Low Bidders & Contracts Awarded

Mass., Taunton—General Electric Co., 26 Weir St., 1 story, brick, steel power plant addn., to Walter H. Barker, Inc., 23 Main St. Est. **$68,000.**

North Carolina—Blue Ridge Electric Membership Corp., C. E. Viverette, mgr., Lenoir, Sept. 17, 486.4 mi. rural distr. lines, Caldwell, Watauga, Ashe, Alleghany and Wilkes Counties, from Rockingham Constr. Co., Rockingham, **$798,718.**

North Carolina — Brunswick Electric Membership Corp., Shallotte, Sept. 24, 380 mi. rural distr. lines, Bladen, Brunswick and Columbus Counties, from E. C. Bridges, Health Springs, **$487,396.**

North Dakota—Kem Electric Co-operative, Linton, labor for 291 mi. rural distr. lines, Emmons Co., to O'Leary & Stolks, Fargo, **$105,746.** Bids 9/16.

Virginia—U. S. Eng., Fort Norfolk, Norfolk, Sept. 28, three 35,555 kva and one 13,333 kva generators at Buggs Island Powerhouse, Inc. No. Eng. 44-110-49-1, from Westinghouse Electric Corp., Union Bank Bldg., Pittsburgh, Pa., **$2,935,462.**

Washington—Bonneville Power Admin., 729 N. E. Oregon St., Portland, Ore., clearing right-of-way and constructing access roads for Fairmount-Port Angeles 115 kv transmission line, Schedule 3-A, Inv. 4308. Clallam Co., to F. E. Wilder, R. F. D. 6, Olympia, **$70,300.** Awarded 10/1.

Wisconsin—Price Electric Co-operative, Phillips, 165 mi. rural distr. lines, Price, Taylor, Sawyer, Oneida and Iron Counties, to Kiiloren Electric Co., Appleton, **$122,276.** Bids 9/22. Carl C. Crane, Inc., 2702 Monroe St., Madison, engr.

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

Conn., Hartford—State, Fred R. Zeller, state comptroller, State Capitol, brick, steel, concrete addn. state office, 3 story $900,000, or 7 story $2,000,000. Plans deposit $50. Roy D. Bassette, 1932 Albany Ave., West Hartford, archt.

Ind., Indianapolis — Producers Realty Corp., J. M. Rosa, pres., 320 S. New Jersey St., warehouse, cold storage, refrigeration sys., loading docks, paved roadways, for Metropolitan Produce Terminal at Brightwood Airport. **$2,000,000.**

Mass., Beverly—City, S. M. King, supt. Schools, plans by Thomas Worcester, Inc., 84 State St., Boston, Junior High School. **$2,000,000.**

N. C., Salisbury—U. S. Eng., 33 Customhouse, Charleston, S. C., neuropsychiatric hospital, for Veterans Admin. Vermont Ave. between H and I Sts. N.W., Wash., D. C. $10,000,000. W. W. Hook & Assoc., 309 W. 4 St., Charlotte, Raleigh, engr. and Wm. H. Deitrick, 115 W. Morgan St., Raleigh, archts. Wm. C. Olsen, 5 Exchange Pl.

Ore., Portland—Earl Hanson & Assoc., Yeon Bldg., shopping center, S. E. Schiller and Steele Sts., 36 Pl. and 29 Ave. **$15,500,000.**

Tex., San Antonio—Produce Market Terminal Co. of the San Antonio Chamber of Commerce, c/o J. W. McVay, chn., Insurance Bldg., wholesale produce market and terminal, Zarzamora and S. Laredo Sts. **$2,500,000.**

Low Bidders & Contracts Awarded

Calif., Palos Verdes—Palos Verdes Apts. Inc., 1001 N. Vermont St., Los Angeles, 22 unit frame, stucco apartments, incl. sewer, water, sidewalks, electric sys., etc., to Republic Constr. Corp., 1001 N. Vermont St., Los Angeles. Est. **$847,000.** Albert Criz, 556 S. Harvard St., Los Angeles, archt.

Del., Wilmington—Monroe Park Homes, Inc., 600 N. American Bldg., Kennet Park development, Kennet Turnpike, to Anthony P. Miller, Inc., 3333 Artic Ave., Atlantic City, N. J., **$5,000,000.** Kelly & Gruzen, 220 Broadway, New York, N. Y. archts.

N. Y., New York—Dpt. P. Wks., Municipal Bldg., Zone 7, Sept. 23, general construction Gansevoort Market Meat Center, West St., Little W. 12 St. and Washington Ave., from Tobias Heller & Sons, Inc., 411 Lexington Ave., **$1,508,830.**

NEWS ABOUT PEOPLE

Dr Killian Heads MIT; Compton Goes to Capital

Dr James R. Killian, Jr, has been named president-designate of the Massachusetts Institute of Technology, as of Oct 15. He succeeds Dr Karl T. Compton, who has been president since 1930. Dr Compton becomes chairman of the Institute corporation and will also serve as chairman of the Research and Development Board of the National Military Establishment in Washington.

Dr Killian was graduated from MIT in business and engineering administration. He joined the Institute staff that year and has been vice-president since 1945. Dr Killian is the first MIT graduate to become president

J. R. KILLIAN, JR.

of that noted school of engineering. During the recent war he shared with President Compton the administrative responsibility of directing more than 6,000 scientists and engineers in research and development of war projects and educational courses.

Dr Compton, an internationally known physicist and administrator, has been widely honored for his scientific achievements and contributions to engineering education.

A native of Wooster, Ohio, Dr Compton had served on the teaching staff of Wooster College, Reed College, and Princeton before becoming president of MIT in 1930. He has been a summer lecturer in physics at the Universities of Michigan, Cornell, Columbia, Chicago, and California. From 1917-19 he served as aeronautical engineer in the Signal Corps and later as officer of

K. T. COMPTON

the Research Information Service and associate scientific attache to the American Embassy in Paris.

He will spend part of his time in Cambridge on MIT affairs.

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Electrical Leagues Elect Chamberlain President

(See Front Cover)

J. Clark Chamberlain, secretary-manager of the Bureau of Radio and Electrical Appliances of San Diego (Calif.) County, has been elected president of the International Association of Electrical Leagues. He will take office on Jan 1.

Mr Chamberlain has held his present position since he assisted in the formation of the Bureau in 1932. He entered the electrical industry in 1927 as a sales manager for a Frigidaire distributor in Orange County, Calif. Later he took a similar position with a Westinghouse distributor at San Diego.

He has been active in the IAEL since its formation in 1936 and has served on the board of governors and as vice-president.

Other officers who will serve with Mr Chamberlain are A. H. Kessler, manager, North Central Electrical Industries, Minneapolis, vice-president, and H. P. Wilson, secretary-manager, Electrical Institute of the Tri-Cities, Rock Island, Ill., treasurer. O. C. Small, manager of the Business Development Department of the National Electrical Manufacturers Association, New York, will continue as secretary.

Savannah Electric Elects L. C. McClurkin President

L. C. McClurkin, formerly president and general manager of the Upper Peninsula Power Co, Houghton, Mich., has been elected president of the Savannah (Ga.) Electric & Power Co, to succeed Claude C. Curtis, who has resigned on reaching retirement age.

Mr McClurkin has been associated with the utility industry for 28 years, joining the Eastern Texas Electric Co, Beaumont, in 1920. In 1934 he became identified with the Texas-New Mexico Utilities Co as sales manager and later served as division manager at Plainview. Five years later he became general manager of the Arkansas Utilities

L. C. McCLURKIN

Co, with headquarters in Helena. Subsequently he was made president and general manager of the company, and later of the West Coast Power Co and the California Public Service Co. He then joined the Houghton County Electric Light Co, serving as its president and general manager, holding the same position with its successor, the Upper Peninsula Power Co.

Mr Curtis retired as president of the Savannah utility after completing 10 years of service in that office. He joined Stone & Webster shortly after graduation from the University of Michigan in 1907. From 1907 to 1912, he was superintendent, and later manager, of the street railway, light and power company in Puerto Rico. He returned to New England with Stone & Webster and held executive positions in Texas, Nova Scotia, State of Washington and finally

in New York. He then went to Savannah Electric & Power Co, where he succeeded Howard C. Foss.

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Dillard, Stewart Assigned New Engineering Duties

Edward W. Dillard has been appointed chief engineer of the New England Power Service Co, Boston, and

E. W. DILLARD

Herbert R. Stewart, since 1934 protection engineer of the company, has been appointed electrical engineer. Harris Barber, since 1934 electrical design engineer (generating and substations), has been made assistant electrical engineer.

After spending a year with the General Electric Co, Mr Dillard joined the Alabama Power system, becoming a re-

H. R. STEWART

lay specialist at Birmingham in 1914. In 1916 he became chief of tests on meters, relays, oil circuit breakers, and lightning arresters for the New England Power system. In 1919 he was named assistant electrical engineer. Since 1927 he has been electrical engineer of the now New England Power Service Co. He has been a director of the Service company since 1943. Mr Dillard is a fellow of the AIEE, member of its transmission and distribution committee, and chairman of the engineering division general committee, Edison Electric Institute.

Mr Stewart was identified with the Westinghouse Electric Corp from 1925 to 1934, in central station engineering at Pittsburgh and Boston. He was a research associate at MIT for a half year. Mr Stewart is active in electrical committee work in the EEI and AIEE and is a fellow of the latter. In the recent war, he was loaned on part time to the Harvard Underwater Sound Laboratory.

Mr Barber had spent four years with General Electric before joining the engineering staff of the New England Power group in 1928.

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▶ WILLIAM WEBSTER, executive vice-president, New England Electric System, Boston, has been appointed deputy secretary of defense for atomic energy, Washington, D. C. He has been granted a six-months' leave of absence from his regular duties. In the interim Chandler W. Jones, assistant vice-president of the System, will carry on Mr Webster's work at the utility headquarters. Mr Webster will be aide to Secretary of Defense James V. Forrestal and will be chairman of the military liaison committee of the Atomic Energy Commission. Mr Webster is a graduate of the U. S. Naval Academy and of Massachusetts Institute of Technology. He has been active in the work of the National Defense Research Committee and in the recent war was with the OSRD at Washington. Lately he has been a consultant of the A. E. C.

▶ DR ROBERT J. JEFFRIES, formerly of Johns Hopkins University, will direct research projects in electrical engineering for the North Carolina State College.

▶ EDWARD L. KELLER has been appointed superintendent of the meter division, substation and shops department, Duquesne Light Co, Pittsburgh, to succeed E. A. Murray, retired. Mr Keller has been identified with the company since 1917.

OBITUARY

▶ DR WILLIAM R. WORK, assistant director of the college of engineering and science, Carnegie Institute of Technology, and one of the school's first faculty members, died in that city on Oct 3. He was 67 years old. Dr Work has been affiliated with Carnegie since 1905. He became professor and head of the department of electrical engineering in 1920 and continued to direct the Carnegie electrical engineering department for two years after his appointment as assistant director of the engineering college in 1942. Dr Work was a fellow of the American Institute for the Advancement of Science and a member of the American Institute of Electrical Engineers, the American Society for Engineering Education and the Engineers' Society of Western Pennsylvania.

▶ ALBERT C. SHEPHERD, formerly manager of industrial sales for the Cleveland Electric Illuminating Co, died on Aug 3 at the age of 61. Mr Shepherd joined the company in 1910 as a sales engineer. He was promoted in 1917 to sales supervisor and in 1943 to manager of power sales. Mr Shepherd was made manager of industrial sales in 1945. He retired last June, after 38 years with the company. During his early years as a power sales engineer, Mr Shepherd pioneered in the electrification of many Cleveland industries. Throughout his career he worked constantly for the industrial development of the Cleveland-Northeast Ohio area.

▶ GEORGE B. BALDWIN, construction superintendent for the Public Service Co of Northern Illinois, Chicago, died on October 2. He was 52 years old.

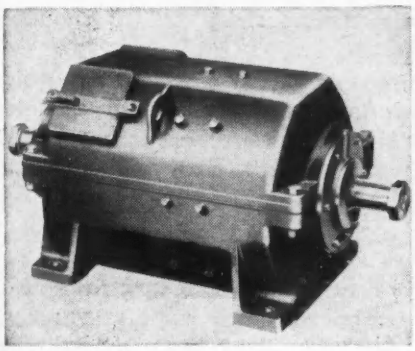
▶ WILLIAM E. FIXMER, purchasing agent for the Western United Gas & Electric Co, Chicago, died on Sept 23. He was 55 years old. Mr Fixmer had been associated with Western United Gas & Electric for 36 years.

▶ ARTHUR H. WYMAN, district sales manager for the Allis-Chalmers Manufacturing Co in Cleveland, died on Oct 5 at the age of 65. Mr Wyman has been with A-C in Cleveland for 25 years, having previously served in the company's sales department in Los Angeles, Salt Lake City and Duluth.

▶ GEORGE W. LEE, 81, for 29 years librarian of the Stone & Webster Engineering Corp, Boston died at Concord, Mass., Oct 2. Mr Lee was educated at Harvard College and Harvard Law School. Joining Stone & Webster in 1894, he was given special engineering assignments and other duties until he became librarian in 1900. His contributions to the development of engineering and financial library work were substantial aids to professional achievements in technical and industrial circles in the East.

▶ ALBERT E. GOODING, 39, prominent electrical contractor in the Greater Boston area, died at Boston, Mass., on Oct 2.

NEW EQUIPMENT



Mill Motors

AN ADDITION of the AISE Standard 600 Series mill motor to the company's line of d-c steel mill motors is announced by Crocker-Wheeler Electric Manufacturing Co, Ampere, N. J. The new motor is adaptable for use as totally enclosed non-ventilated or separately ventilated; also self-ventilated.

Special grease slingers and grooves are used to keep grease and dust away from commutator and windings. Bearing caps are readily removable for bearing inspection. Solid cylindrical roller bearings are supported against thrust and radial loads.

Improved commutation is said to be provided by split brushes and four interpoles. The coils have extra support against vibration.

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Half Load Relay

A NEW HALF-LOAD RELAY designed to improve cold-weather starting of 10,000 and 21,000-lumen mercury vapor lamps on series street lighting circuits has been announced by Lighting and Rectifier Divisions of General Electric Co.

The new relay is said to approximately double the useful load capacity of the constant-current transformer when used with those lamps. Also it eliminates, in many cases, the installation of an additional series circuit, thereby resulting in a saving in the cost of transformer and control equipment. It permits a changeover from 400-w, 16,000-lumen G-E Type F-Hl lamps to 21,000-lumen-mercury G-E Type E-Hl lamps without adding more constant-current transformer capacity.

The relay consists of a standard street lighting controller and a time delay relay which is connected across half the load loop in order to short circuit initially the remote half of the lamps while the balance of the lamps are starting at full voltage. After approximately 10 sec the short circuit is removed. Since the lamp voltage is low immediately after the lamps have started, the bulk of the constant-current transformer capacity is then impressed on the second half of the circuit.

The relay element to operate the controller is housed in a weather-proof casing with a hinged door. A mounting strap welded to the casing permits either pole or crossarm mounting.

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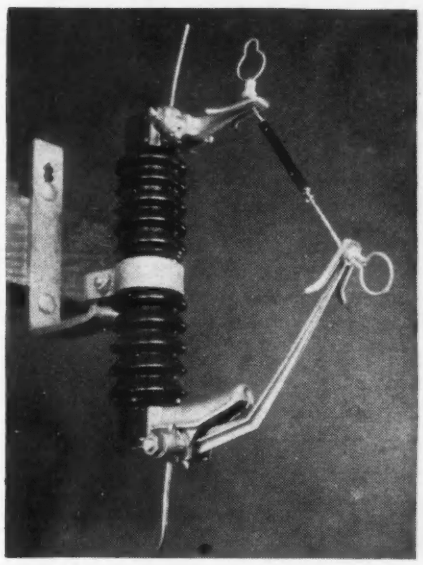
Cutout

NEW open link cutout has been designed with bronze fittings and a covered terminal separation spring. This type EM cutout is a product of A. B. Chance Co, 210 Allen St, Centralia, Mo.

The spring has a protective housing to prevent ice and sleet from interfering with the operation. Other features are listed. Short arcing time and rapid opening of the circuit are assured by the terminal spring load exerted on the fuse. Spring also absorbs the shock of overtravel, preventing damage to the



insulator. Spring is so located that it cannot be overstretched and damaged in handling the cutout. Spring is out of the current carrying path and its tension cannot be affected by heavy current surges.

Pressure type conductor terminals are shaped to make four-point line contact with any size jumper used. Slats on both sides of each arm afford easy fusing from either side.

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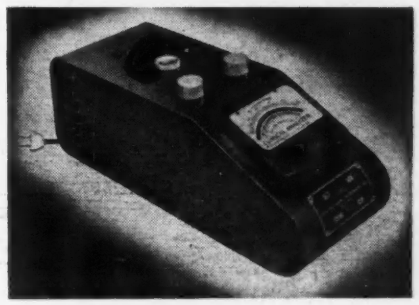
Colorimeter

A PHOTOELECTRIC colorimeter calibrated for 60 clinical determinations, is announced by Brociner-Mass Instruments, Inc, 1546 Second Ave, New York 28, N. Y. Known as the clinical analyzer, it is designed for production service.



The instrument uses test tubes of 17 mm and 11 mm dia. It is self-contained, operates on 110 v a-c, and incorporates a built-in voltage regulator. Five optical glass filters mounted in a revolving filter disk permit quick and easy selection of the filter desired.

The scale of the instrument is 3¾ in. Both linear and logarithmic scales are incorporated; thus, readings can be made in terms of percent transmission or optical density, as desired.

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Thyratron

THE MERCURY-VAPOR thyratron, RCA-672-A, is now available for use in relay control applications and for controling the firing of ignitrons. The announcement was made by Radio Corp of America, Harrison, N. J.

This improved design 672 A supersedes the 672, is unilaterally interchangeable with it, and has the following differences: (1) Heater current reduced from 6 to 5 amp; (2) maximum peak forward and inverse anode voltage ratings increased from 1500 to 2500 v; (3) maximum peak anode current increased from 30 to 40 amp; (4) maximum average anode current is increased from 2.5 to 3.2 amp; and (5) overall length is shortened by ¼ in.

ELECTRICAL BUSINESS OUTLOOK

GOVERNMENT EXPENDITURES hold the key to continued good business for 1949. And from every indication, they will still be rising. Continued tension with Russia has reinforced plans for rearmament expenditures larger than this year's $14 billion. To that may be added $2 billion more of lend-lease arms for Europe and more billions for the Marshall program.

Public outlays for construction, including schools, hospitals and highways, are also on the upswing. They should take up any slack left by a decline in industrial building. So, although some lines of private business may slacken, government spending assures a high level of industrial activity well into '49. Industrial power loads will keep pace, especially with the continued boom in heavy industry.

RESIDENTIAL SALES stand a good chance to continue their spectacular growth. Government experts expect new home starts in 1949 to come close to this year's record. That means almost a million more residential customers. And it's possible that an equal number will be added in 1950.

Homes are being built twice as fast as new families are being formed. That has cut the backlog demand for housing. But over 2 million families are still living doubled up. And many more would like new homes to replace present inadequate ones.

Biggest threat to the housing boom is building costs. They are up more than consumer incomes. But much of these higher costs is offset by the low rate of mortgage interest. And individuals still have large savings to make down-payments. So, despite high costs, building should hold up for at least another year.

Residential power sales turned up in July this year. Last season the turn did not come until August. In mid-summer the residential load was as high as in any but the peak winter months of 1947. For the first half of 1948, total residential sales show an increase over 1947 of 15%.

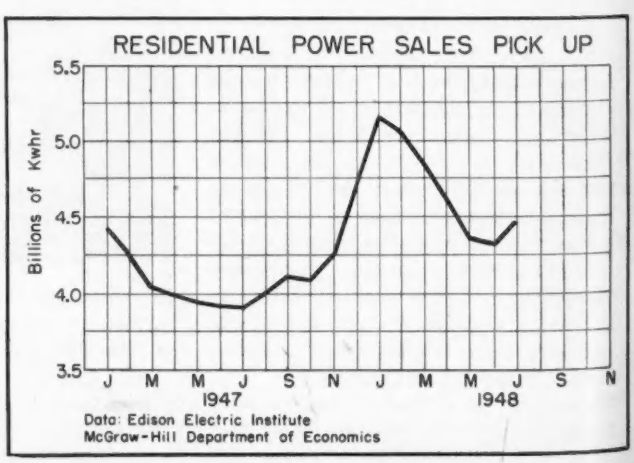
Home-building is the big reason behind these gains. They are also bolstered by the rapid rate at which new home owners are buying electric appliances. The appliance industry is estimated to have sold 80% more units in 1947 than in 1941. This was probably the peak, but 1948 and 1949 will not be far behind.

Existing residential customers have satisfied most of their war-deferred needs for electric appliances. Exceptions are refrigerators and electric ranges, production of which has been restricted by steel shortages. But each new household formed will buy a wide variety of appliances as long as consumer income holds near present levels.

Several relatively new appliances are rapidly gaining consumer acceptance and can add to the total residential load. Market researchers have bright hopes for the electric blanket, dishwasher, waste disposer, clothes dryer, and home freezers.

COAL PRICES may have ended their upward spiral. First signs have appeared that supply may be catching up with demand. Coal exports this year have dropped to a fraction of last as world production, particularly in the Ruhr, picks up. Domestic coal stockpiles are reported to be close to a record.

John L. Lewis is already talking about a share-the-work plan for his miners if coal production drops. Hours worked in the mines averaged under 35 per week in July, although there was no strike this year. So far, most of the falling off is in marginal mines. Demand for good quality coal will probably be strong through most of 1949. But the seller's market may be ending.

Labor costs will be a strong brake on coal prices, even in a declining market. Lewis has already hinted he will demand another wage increase next spring. Competition among coal companies will be keen if their market shrinks. Some will surely cut prices. But if Lewis enforces his plan to keep the present number of miners working at full wages but shorter hours, he can keep prices from dropping far.

Utility managements may, therefore, be able to cut fuel costs some in 1949. But no sharp decline is yet in sight. Prices of oil and gas will hold as long as coal stays high.